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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/697,528	10/30/2003	Robert P. Sullivan	390-011338-US(PAR)	8147
2512 PERMAN & GREEN 425 POST ROAD FAIRFIELD, CT 06824	7590 08/26/2008		EXAMINER FOX, CHARLES A	
			ART UNIT 3652	PAPER NUMBER
			MAIL DATE 08/26/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/697,528

Applicant(s)

SULLIVAN ET AL.

Examiner

Charles A. Fox

Art Unit

3652

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on April 28, 2008.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-10 and 12-46 is/are rejected.
7) ☒ Claim(s) 11 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 12 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-8508)
Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claim 44 is rejected under 35 U.S.C. 102(a) as being anticipated by Bonora et al. Bonora et al. US 6,494,308 discloses a material handling system capable of handling a container with at least one wafer therein in a controlled environment to a processing device, said device comprising:

a conveyor transport section (10) including a drive track (12);

track elements (42) interfacing with a wafer container (8) for driving the container along said tracks;

wherein the track sections are modular and adapted to be joined together to form an extended track;

wherein each module has at least one of the track elements thereon.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1,15-18,20,34,35-39,40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bonora et al. in view of Lin et al and further in view of Mizokawa et al.

Regarding claims 1,17,18,20,34 and 37-39,40 and 43 Bonora et al. US 6,494,308

teaches a wafer process system comprising:

- at least one processing tool for processing semiconductor wafers;

- a container (8) for holding at least one wafer therein for transport to and from the processing tool;

- a transport section (10) for connecting the processing tool with other devices within a fabrication facility;

- the transport section is not vehicle based and has tracks (12,14) which directly interface with the container for movably supporting the container, and allowing the container to move relative to the various devices in the facility;

- wherein the tracks have a motor (48) therein for aligning the container with various track sections and devices in the facility;

- wherein said motor is capable of bidirectional movement of one container at the same time along a common section of the track;

- wherein the container may be stopped at any predetermined location for access from the overhead lift;

- wherein the layout of the system can be made to fit any location depending on the number of process devices as well as building layout. Bonora et al. do not teach an exact structure of the overhead transport system being used in their facility or bidirectional movement of containers along a common track section. Lin et al. US 2003/0198540 teaches a wafer processing facility comprising:

- at least two stocking devices (30) each with an input/output of port;

a first overhead transport system for moving wafer containers (44) about the facility via a track(38) with a motorized carriage (36);

a second transport system (52) for moving containers between the stockers;

wherein the two transport sections are parallel at portions of their runs. Lin et al. does not teach the opposite movement of two containers along a common track at the same time. Mizokawa et al. US 6,863,485 teaches a first tracked section (11) for moving wafers therealong;

said tracked section serving a plurality of process devices for processing wafers;

said track comprising:

a rail (11a) for guiding a wafer carrier (13) therealong;

said carrier being driven by a solid state brushless linear motor comprising:

a drive coil (41) mounted to said track;

at least one permanent magnet (42) conventionally mounted to said wafer carrier;

such that energizing said coil will move said carrier bidirectionally along said track;

wherein said track has a single motor that is capable of driving two containers along a track section in opposite directions substantially simultaneously.

It would have been obvious to one of ordinary skill in the art, at the time of invention to provide the device taught by Bonora et al. with the overhead transport as taught by Lin et al. in order to allow two types of transport to service each device in the

fabrication plant without interfering with each other while maintaining a cooperative arrangement such that bottle necks can be more readily avoided in the facility, thereby increasing throughput of the system and to further provide the linear motor on the conveying section to reduce unwanted wear debris in the clean area.

Regarding claims 15 and 16 Bonora et al. further teach the transport system as having at least one shunt portion that can acts as a buffer for the containers on the track.

Regarding claim 35 Bonora et al. further teach that the track has intermediate portions remote from end portions of the track.

Regarding claim 41 Bonora et al. also teach the conveyor tacks as having intermediate portions with connections adapted to be joined together to form an adaptable overall transport system.

Regarding claim 42 Bonora et al. further teach a plurality of sensors (52) for sensing the position of a plurality of containers as they move along the conveyor.

Claims 2-10 and 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bonora et al. and Lin et al. as applied to claim 1 above, and further in view of Belna. Regarding claims 2-10 and 12 Bonora et al. and Lin et al. teach the limitations of claim 1 as above, they do not teach the drive means for the second conveyor as being a linear drive. Belna US 4,624,617 teaches a transport system for wafers comprising:

a first tracked section (10) for moving wafers therealong;
said tracked section serving a plurality of process devices for processing wafers;

said track comprising:

a rail (28) for guiding a wafer carrier (20) therealong;

said carrier being driven by a solid state brushless linear motor comprising:

a drive coil (40) mounted to said track;

at least one permanent magnet (42) conventionally mounted to said wafer carrier;

such that energizing said coil will move said carrier bidirectionally along said track. It would have been obvious to one of ordinary skill in the art, at the time of invention to provide the device taught by Bonora et al. with a linear drive as taught by Belna in order to move the carrier while at the same time limiting the amount of wear debris generated thereby making it easier to maintain the cleanliness standards of the fabrication facility at acceptable levels.

Regarding claims 13 and 14 Bonora et al. further teaches moving the wafer carrier bidirectionally along the track along at least two different axes which are crosswise to one another. See figure 2.

Claims 21 -26 ,28-32, 45 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bonora et al. in view of Belna. Regarding claims 21-25,28,29,31,32,45 and 46 Bonora et al. teaches at least one processing tool for processing semiconductor wafers;

a container (8) for holding at least one wafer therein for transport to and from the processing tool;

said container comprising a frame for securing the wafer therein and engagement surfaces for allowing the container to be captured and carried by another transport vehicle;

a transport section (10) for connecting the processing tool with other devices within a fabrication facility;

the transport section is not vehicle based and has tracks (12,14) which directly interface with the container for movably supporting the container, and allowing the container to move relative to the various devices in the facility;

wherein the tracks have a motor (48) therein for aligning the container with various track sections and devices in the facility. Bonora does not teach a portion of the motor being mounted on the container. Belna teaches a transport system for wafers comprising:

a first tracked section (10) for moving wafers therealong;

said tracked section serving a plurality of process devices for processing wafers;

said track comprising:

a rail (28) for guiding a wafer carrier (20) therealong;

said carrier being driven by a solid state brushless linear motor comprising:

a drive coil (40) mounted to said track;

at least one permanent magnet (42) conventionally mounted to said wafer carrier;

such that energizing said coil will move said carrier bidirectionally along said track;

wherein the portions of the motor mounted on the carrier defines a multi-axis drive motor;

wherein when the container is lifted from the track a corresponding portion of the motor goes along with it, thereby disconnecting it from the track mounted portion of the motor. It would have been obvious to one of ordinary skill in the art, at the time of invention to provide the device taught by Bonora et al. with a linear drive as taught by Belna in order to move the carrier while at the same time limiting the amount of wear debris generated thereby making it easier to maintain the cleanliness standards of the fabrication facility at acceptable levels.

In regards to claims 26 and 30 the portion of the container taught by Bonora that reacts to the drive wheels is adapted to move the container along at least two crosswise axes.

Claims 27 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bonora et al. and Belna as applied to claim 21 above, and further in view of Lin et al. Bonora et al. and Belna teach the limitations of claim 21 above, they do not teach using a separate conveying system. Lin et al. teaches a wafer processing facility comprising:

at least two stocking devices (30) each with an input/output of port;

a first overhead transport system for moving wafer containers (44) about the facility;

a second transport system (52) for moving containers between the stockers;

wherein said first transport system comprises a vehicle (36) that runs along a first track system (38);

wherein the second transport system has a means for aligning a container held by either transport system with the opposing transport system;

wherein the two transport sections are parallel at portions of their runs. It would have been obvious to one of ordinary skill in the art, at the time of invention to provide the device taught by Bonora et al. and Belna with a secondary transport system as taught by Lin et al. in order to alleviate bottlenecks in the delivery system without having to resort to a series of expensive stockers.

Allowable Subject Matter

Claim 11 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The closest prior art of Belna does not teach or suggest placing crosswise magnets on the carrier such that the carrier may be moved along two different axes.

Response to Arguments

Applicant's arguments filed April 28, 2008 have been fully considered but they are not persuasive. Regarding the modularity of the Bonora et al. reference even if all the rails and supports disclosed by Bonora were one continuous piece they still would

form a module. As it is Bonora teaches using element (60) to connect the drive and idler rails. This is a teaching that at least the drive and idler rails are distinct elements and connectable together via a third element. As such they meet the common meaning of the word modular as argued by the applicant.

Regarding the Arguments presented on the last paragraph of page 15 the applicant is directed to Figure 11 of the Bonora et al. reference where a first drive track is shown which directly contacts a container and an idler rail is shown which interacts with a vehicle attached to the container. This meets the limitations which applicant states are missing from the references. As Bonora et al. teaches a motor for driving the drive track, it must stop as needed and will be aligned with the vehicle on the second track.

Regarding the arguments against the rejection of claim 34 Bonora et al. also disclose that each drive zone of the drive rail has drive motors which may move both forwards and backwards, and that each drive can be independently operated in either direction. As such the limitation is taught by the Bonora et al. reference.

Regarding Bonora et al. not stopping the drive track at any place, it is noted that Bonora et al. teach a controller for determining where the container is and starting and stopping the container as needed. As such the broad limitation of stopping a container at a particular location is taught by Bonora et al.

Regarding the combination of Bonora et al. and Belna, the arguments are not persuasive. Only the drive system of Belna is being incorporated into the Bonora et al. reference. As Belna teaches providing part of the motor in the carrier and the other part

in the drive rail a simple substation with the Bonora drive would yield a linear magnetic motor with a removable container. As such all previous rejections are held to be valid and are made final.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles A. Fox whose telephone number is 571-272-6923. The examiner can normally be reached on 7:00-4:00 Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Saul Rodriguez can be reached on 571-272-7097. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Charles A. Fox/
Primary Examiner, Art Unit 3652